

U.S. Patent Application Serial No. 10/691,016
Reply to Office Action dated May 17, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1-37. (Cancelled)

38. (Currently Amended) A mechanized method for vineyard ~~mechanization~~ cultivation, comprising:

mechanical pruning using a first tool as a mechanical pruner;

shoot thinning using a second tool as a mechanical shoot thinner; and

fruit thinning after shoot thinning using a mechanical fruit thinner.

39. (Previously Presented) A method according to claim 38, further comprising harvesting using a mechanical harvester.

40. (Previously Presented) A method according to claim 38, wherein the shoot thinning comprises using a striking tool.

41. (Previously Presented) A method according to claim 38, wherein the pruning comprises using a cutting tool.

42. (Previously Presented) A method according to claim 41, wherein the cutting tool comprises a cutting bar.

43. (Previously Presented) A method according to claim 39, wherein the harvesting comprises using a shaker tool.

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44. (Previously Presented) A method according to claim 39, wherein the shoot thinning comprises using a striking tool, wherein the pruning comprises using a cutting tool, and wherein the harvesting comprises using a shaker tool.
45. (Previously Presented) A method according to claim 44, wherein the cutting tool comprises a cutting bar.
46. (Previously Presented) A method according to claim 44, wherein the striking tool comprises a plurality of striker elements.
47. (Previously Presented) A method for vineyard mechanization according to claim 38, further comprising leaf removal, wherein said leaf removal includes using a mechanical device to remove excess leaves in a fruiting zone.
48. (Currently Amended) A mechanized method for ~~mechanizing~~ a vineyard cultivation and which at least substantially maintains fruit quality, comprising:
- mechanical pruning during a dormant period with a dedicated mechanical pruning tool;
- mechanical shoot thinning during a growing period with a dedicated mechanical shoot thinning tool, wherein pruning and shoot thinning are coordinated to arrive at a predetermined yield; and
- mechanical harvesting with a dedicated mechanical harvesting tool.
49. Cancelled
50. Cancelled
51. (Currently Amended) A mechanization method according to claim 49, 38, wherein the grapes are trained on single curtain trellis systems, the method further comprising canopy

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adjustment by removing a portion of the canopy foliage to allow for movement of air and light into a portion of the canopy.

52. (Currently Amended) A mechanization method for grapes trained on GDC trellis and GDC-like canopy systems, comprising:

pruning during a dormant period using a mechanical pruner;

shoot thinning with a shoot thinner;

removing any excess fruit thinning after shoot thinning and before fruit is ready for harvest using a mechanical fruit thinner;

opening centers of a top portion of the vine with a mechanical unit; and

keeping centers clean using a mechanical unit.

53. (Previously Presented) A mechanization method according to claim 52, further comprising harvesting using mechanical harvester.

54. (Previously Presented) A mechanization method according to claim 52, further comprising shoot positioning using a mechanical shoot positioner to position shoots.

55. (Previously Presented) A mechanization method according to claim 52, wherein opening centers comprises using a slapper unit.

56. (Previously Presented) A mechanization method according to claim 52, wherein keeping centers clean comprises using a breaker unit.

57. (Previously Presented) A mechanization method according to claim 52, wherein shoot thinning comprises using a pruner unit.

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58. (Currently Amended) A mechanization method for grapes produced on divided canopy trellises, comprising:

- pruning during a dormant period using a mechanical pruner;
- shoot thinning during a growing period using a mechanical shoot thinner;
- removing any excess fruit thinning after shoot thinning and before fruit is ready for harvest using a mechanical fruit thinner;
- leaf removal using a leaf removal machine; and
- breaking the centers open of a top portion of grape plants between divided portions of the divided canopy trellis using a mechanical device.

59. (Previously Presented) A mechanization method for grapes according to claim 58, further comprising harvesting using a mechanical harvester.

60. (Previously Presented) A mechanization method for grapes according to claim 58, wherein leaf removal removes excessive leaves in a fruiting zone on the outside of the canopy.

61. (Previously Presented) A mechanization method for grapes according to claim 58, wherein breaking centers comprises using a slapper or breaker unit.

62. (Previously Presented) A mechanization method for grapes according to claim 58, wherein pruning comprises summer pruning using a pruning machine to cut sides and tops.

63. (Currently Amended) A mechanization method of grapes trained to a high wire single cordon trellis system, comprising:

- shoot thinning using a shoot thinner;

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~~removing any excess fruit thinning after shoot thinning and before fruit is ready for~~
~~harvest~~ with a mechanical fruit thinning device;

canopy removal in vigorous, mature vineyards in cool and/or humid regions, by removing
the center top with a slapper unit adapted to remove said top;

minimal pruning using a pruning unit; and

harvesting using a mechanical harvester.

64. (Currently Amended) A mechanization method for grapes produced on a California T-trellis, comprising:

dormant pruning using a mechanical pruner;

shoot thinning during a growing period using a shoot thinner;

~~removing any excess fruit thinning after shoot thinning and before fruit is ready for~~
~~harvest~~ with a mechanical fruit thinner;

early leaf removal to expose fruit to sunlight and acclimate grape skins to sunlight
exposure using a leaf remover machine adapted to remove leaves; and

harvesting using a mechanical harvester.

65. (Currently Amended) A mechanization method for grapes produced on vertical
moveable catch wires, comprising:

dormant pruning using a mechanical pruner;

shoot thinning during a growth period using a shoot thinner;

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~~removing any excess fruit thinning after shoot thinning and before fruit is ready for harvest~~ with a mechanical device adapted to remove excess fruit;

leaf removal using a machine to remove excessive leaves;

~~pruning in the summertime~~ during a growth period with a pruner unit; and

harvesting using a mechanical harvester.

66. (Currently Amended) A mechanization method for grapes produced on Smart-Dyson Ballerina trellis systems, comprising:

dormant pruning using a mechanical pruner adapted to prune on the upper part of the ballerina and a pruning unit adapted to prune on the lower part of the ballerina;

shoot thinning during a growth period using a first shoot thinner adapted to shoot thin on the upper part of the ballerina, and using a second shoot thinner adapted to shoot thin on the lower part of the ballerina if needed;

after shoot thinning and before fruit is ready for harvest, removing any excess fruit from the upper part of the ballerina with a fruit thinner, any excess fruit on the lower part of the ballerina with a fruit thinner having different top and bottom settings;

leaf removal using a leaf removal machine adapted to remove leaves on the upper part of the ballerina trellis and using a leaf removal unit on the lower portion to remove leaves;

summer pruning the upper part of the ballerina with a pruner unit, trimming all shoots on the lower part of the before harvest with a pruner unit; and

harvesting with a mechanical harvester.

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67. (Withdrawn) A mechanization system for mechanizing a vineyard and which at least substantially maintains fruit quality, comprising:
- a dedicated mechanical pruning tool;
 - a dedicated mechanical shoot thinning tool; and
 - a dedicated mechanical harvesting tool.
68. (Withdrawn) A system according to claim 67, wherein the shoot thinning tool comprises a striking tool.
69. (Withdrawn) A system according to claim 68, wherein the striking tool comprises a brush.
70. (Withdrawn) A system according to claim 67, wherein the pruning tool comprises a cutting tool.
71. (Withdrawn) A system according to claim 70, wherein the cutting tool comprises a cutting bar.
72. (Withdrawn) A system according to claim 70, wherein the harvesting tool comprises a shaker tool.
73. (Withdrawn) A system according to claim 70, wherein the shoot thinning tool comprises a striking tool, wherein the pruning tool comprises a cutting tool, and wherein the harvesting tool comprises a shaker tool.
74. (Withdrawn) A system according to claim 73, wherein the cutting tool comprises a cutting bar.

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75. (Withdrawn) A system according to claim 73, wherein the striking tool comprises a plurality of striker elements.

76. Cancelled

77. Cancelled

78. (Currently Amended) A method for mechanizing a vineyard and which at least substantially maintains fruit quality, comprising:

mechanical pruning during a dormant period with a dedicated mechanical pruning tool;

mechanical shoot thinning during a growth period with a dedicated mechanical shoot thinning tool; and

mechanical fruit thinning after shoot thinning and before fruit is ready for harvest with a dedicated fruit thinning tool;

wherein in the vineyard comprises grapes trained on trellis systems selected from the group consisting of: single curtain trellis systems, GDC trellis and GDC-like canopy systems, divided canopy trellis systems, high wire single cordon trellis systems, California T-trellis systems, vertical movable catch wire systems, divided canopy trellis systems, and Smart-Dyson Ballerina trellis systems.

79. (New) A method according to claim 38, wherein the mechanical pruning is performed during a first period in the vineyard's dormant season, and the mechanical shoot thinning is performed during a second different period in the vineyard's growing season, and the mechanical fruit thinning is performed during a third different period in the vineyard's growing season after shoot thinning.

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80. (New) A method according to claim 79, wherein the pruning is performed to remove a predetermined percentage of grapevines canes and/or shoots, and shoot thinning is performed to remove a predetermined percentage of shoots, and fruit thinning is performed to remove a predetermined percentage of fruit.

81. (New) A method according to claim 38, wherein pruning and shoot thinning are coordinated to achieve a predetermined node density and yield.

82. (New) A method according to claim 38, wherein the shoot thinning removes shoots below the grapevine's cordon.

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